ELECTROMAGNETIC & SENSOR SYSTEMS
DEPARTMENT

AESOP

Afloat Electromagnetic Spectrum Operations Program (AESOP) Spectrum Management Challenges for the 21st Century

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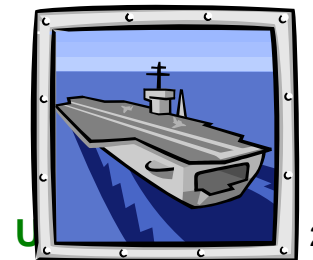| 16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT **Same as Report (SAR)**	18. NUMBER OF PAGES **15**	19a. NAME OF RESPONSIBLE PERSON
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AESOP Mission

AESOP is the US Navy tool for Strike Group Radar and Communications Planning for coordinating spectrum interoperability in afloat operations worldwide.

➢ **AESOP uses previously allocated frequencies to generate optimal Radar Plans and OPTASK COMMs that adhere to laws and numbered fleets' emission policies.**

➢ **AESOP integrates and de-conflicts the spectrum requirements of all acquired systems in the global operational electromagnetic environment (EME).**

2

Multi-National Strike Groups
Communication, Radar, NAVAID, EW Military Equipment
Commercial Spectrum Use
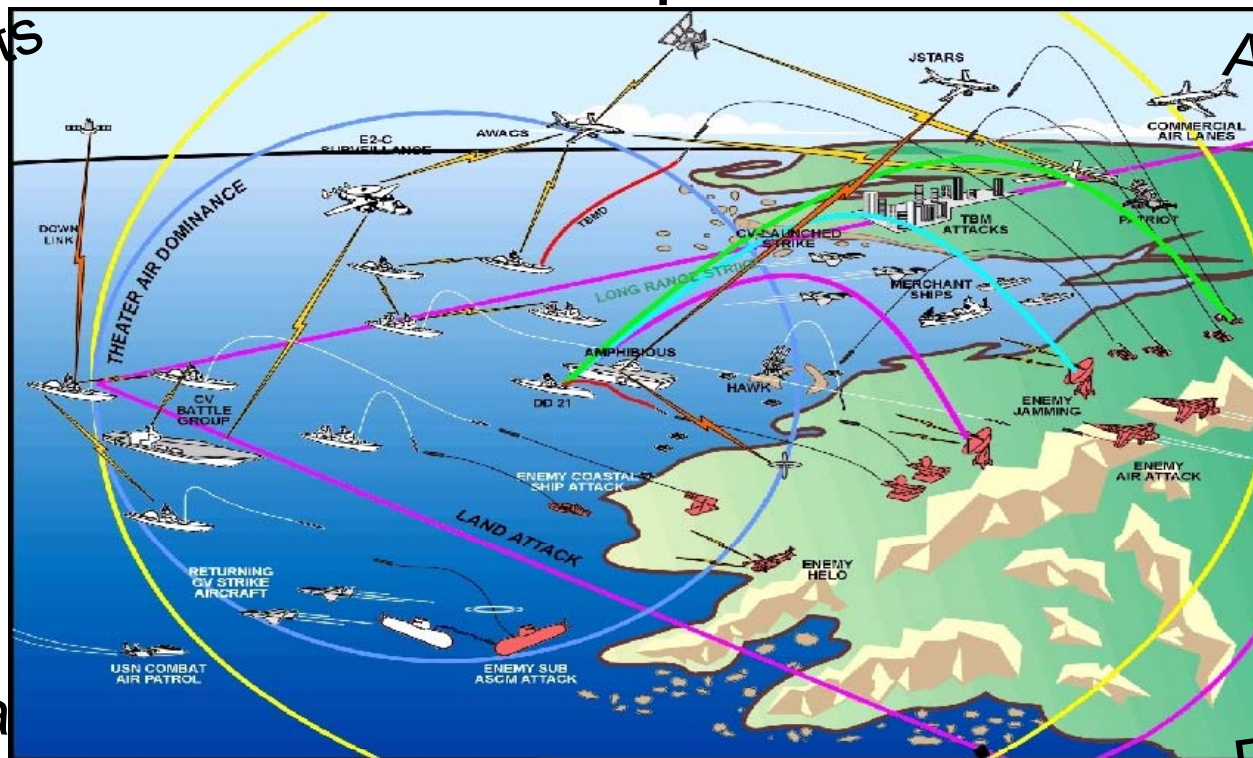
Host Nation Agreements

Table of Allocations

NTIA

ITU

DD-1494

JRFL

Local Area Assignments

Radiation Restrictions

Afloat Users Need Simplicity

Afloat Spectrum Planning Involves

– Process

- Automation to Simplify Task
- Compliance with Military Doctrine
- Utilizes Chain of Command
- Effectiveness

– Tool

- Accuracy
- Compatibility
- Efficiency
- User Friendliness

Afloat Electromagnetic Spectrum Operations Program

- √ Integrated Spectrum Planning Tool
- √ Automated Information Flow of Spectrum Planning
- √ Automated Frequency Assignment Generation
- √ Analysis of EMI Involving SG and Shore Based Emitters
- √ Complete Deployment Frequency Plans and Operational Guidance
- √ Compliant with Navy Certification and Messaging Standards
- √ Version 2.1, October 2008

Mandated by ALCOM 33/05, ALSECONDFLT 18/04 / ALTHIRDFLT 06/04

Process – Military Doctrine

- **Supporting Documents**
  - TM 3.13.2-04, Afloat Electromagnetic Spectrum Planning and Management (defines NSME roles and responsibilities)
  - NTTP 3-51.1, Navy Electronic Warfare
  - NTTP 3-13.2, Navy Information Operations Warfare Commander's Manual
  - NTA 5.5.6, Perform Spectrum Management

- **Navy Spectrum Management Element (NSME)**
  - Responsible for spectrum planning and execution of plan
  - Involves all SG spectrum users

- **Supports Information Warfare (IW) Requirements**
  - Centralizes the spectrum management process
  - Afloat staff performing strike group radar and communications planning

✓ **Does the Strike Group (SG) have a valid OPTASK COMM and Radar Plan for the intended Op-Area?**

✓ **Are all SG COMMS and radars operating in compliance with the published OPTASK COMM and Radar Plan?**

✓ **Are unit Spectrum Management (SM) personnel familiar with EMI interference restrictions for assigned operations area?**

✓ **Spectrum Management software updated with current ship board communications, radar and weapons systems?**
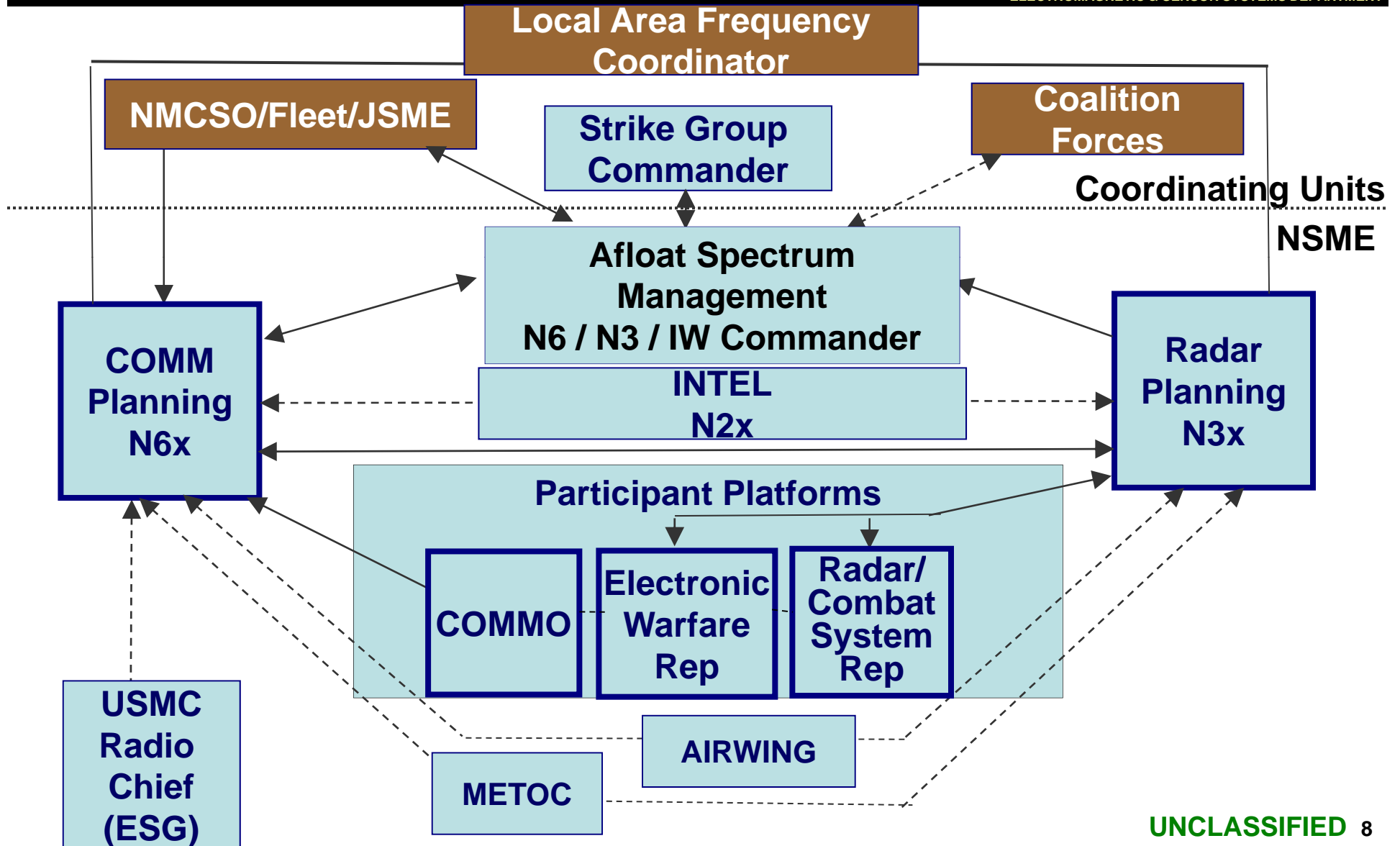
AESOP–Related Task Measures

Comprehensive Plan

Local Area Frequency Coordinator

NMCSO/Fleet/JSME

Strike Group Commander

Coalition Forces

Coordinating Units

NSME

Afloat Spectrum Management
N6 / N3 / IW Commander

INTEL N2x

COMM Planning N6x

Radar Planning N3x

Participant Platforms

COMMO

Electronic Warfare Rep

Radar/ Combat System Rep

USMC Radio Chief (ESG)

METOC

AIRWING

Process - Effectiveness

✓ **Better Defined Roles and Responsibilities**

✓ **All Spectrum Users Considered**

- Communication Systems (COMMs)
- Navigation Aids (NAVAIDs)
- Electronic Warfare Systems (EW)
- Local Area Assignments

✓ **Supported by Navy Doctrine**

- TACMEMO
- NTA 5.5.6

✓ **External Time Constraints Met**

- NMCSO Standing Plan Request
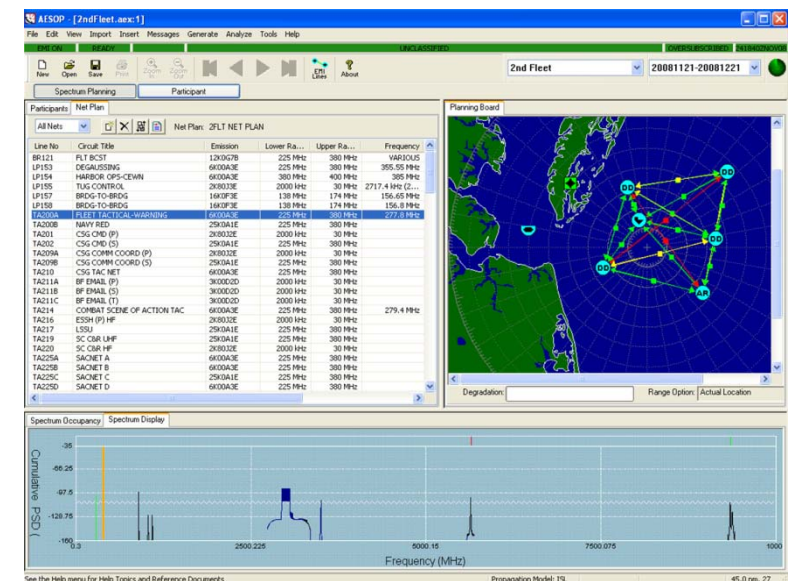- Frequency Request
- Participant Request Message

AESOP Implements

– Validated Analytical Models

– Standard DoD Propagation Models

– Interference Prediction Between

- Radar
- COMM
- EW
- NAVAIDs
- Local Area Assignments

- **Current Interfaces**
  - MCEB Pub 7 Standard Frequency Action Format
  - Registered XML Schema
  - Frequency Resources - JACS
- **AESOP 3.0 (2010) and beyond**
  - MCEB Pub 8
  - True RF Environment eXtractor (T-REX), Production Grade Spectrum Sensor – Data Interface
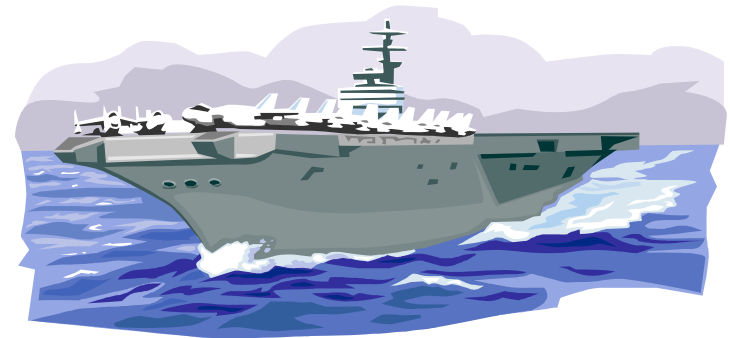 - SPEED / AESOP

- **Automatically Incorporate Frequency Restrictions**
- **Populated Database Minimizes Data Entry**
  - Strike Group
  - Platform
  - Equipment Inventory
  - System Data
- **Import of Critical Planning Information**
  - Net Assignments
  - Participant Data
- **Plan Entire Deployment**
- **Automated Message Generation**
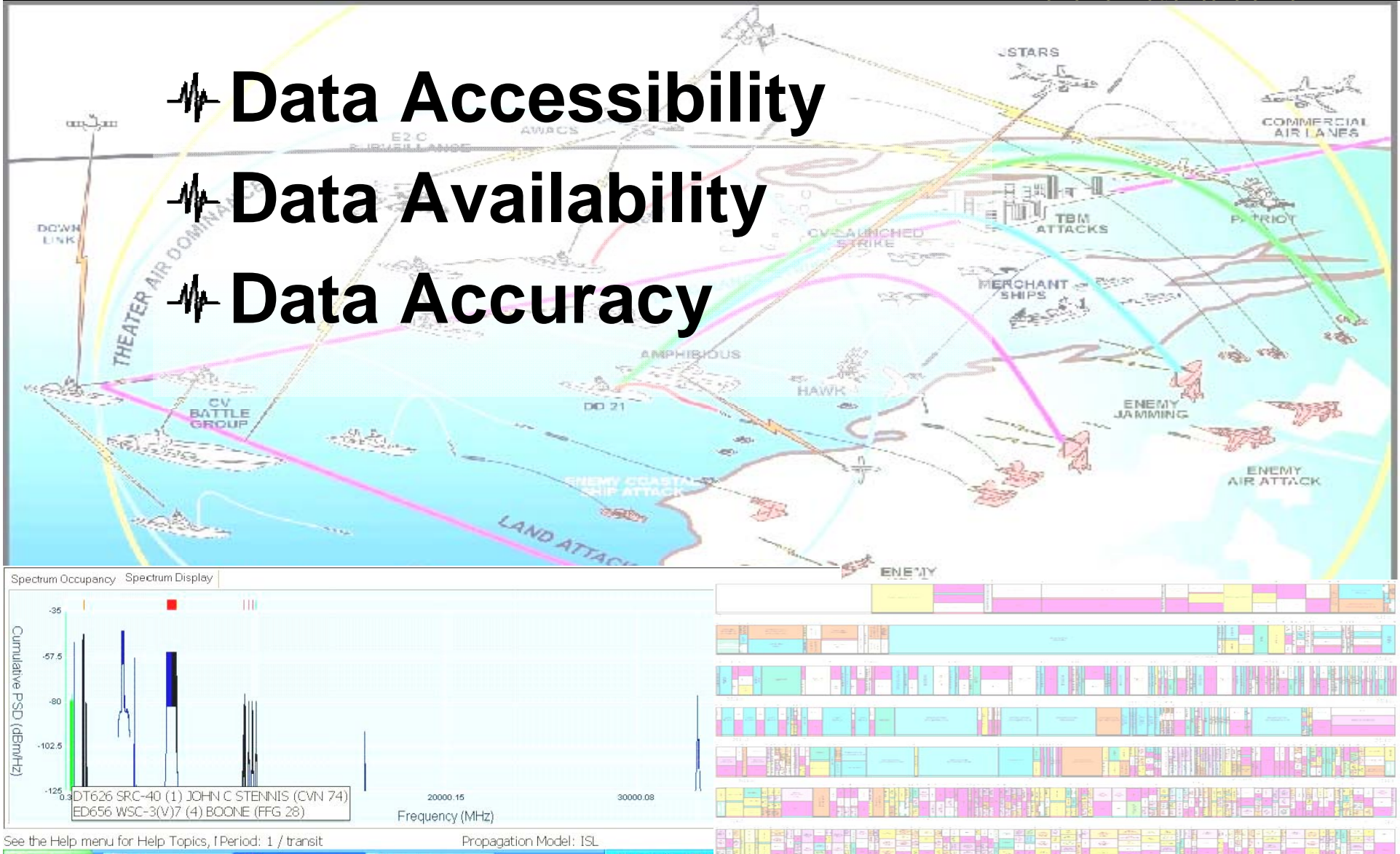- **Intuitive Graphical User Interface (GUI)**

Spectrum Management Challenges for the 21st Century

- **Data Accessibility**
- **Data Availability**
- **Data Accuracy**

AESOP Efforts

- MCEB Pub 8
- Services Oriented Architecture
- Web-Based
- DD-1494 Measurement Techniques
- Electronic Warfare Data Format
- NATO Version "NEOP-2007"

Questions?

Comments?

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